



# Remote Visual Inspection Applications and Solutions

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imagination at work

# Remote Visual Inspection - RVI

Indirect Visual Examination  
Provide Video and Still Images  
Quantify Asset Condition



# RVI – Range of Products

Borescopes  
&  
Fiberscopes



1.7mm 2.4mm

Video  
Borescopes



3.9mm 5.0mm 6.1mm 6.2mm 8.4mm

Pan-Tilt-  
Zoom  
Cameras



70mm 100mm 140mm

Robotic  
Crawlers



100 - 225mm

Aerospace

Gas

Energy/O&G

# Anatomy of a Video Borescope

## Insertion Tube

Length and diameter vary

Flexible

Can span small gaps

Camera

Display

Controls



# Capabilities

Access deep inside equipment

View live video

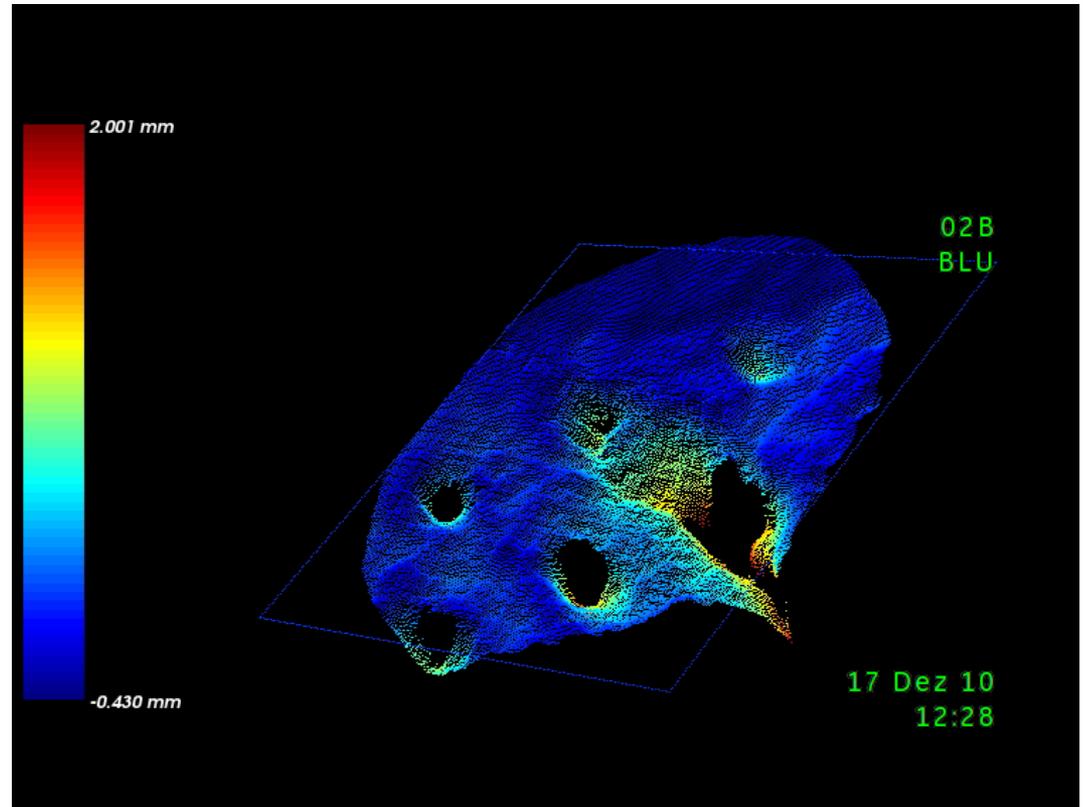
Capture still images

Perform 2D and 3D measurement

Capture 3D Point Cloud data



# XLG3 with 3D Capabilities



## 3D part scanning and measurement

# FOD Retrieval

Find object  
Extract  
Prevent disassembly



# Applications



# Markets



# Applications



Heat Exchangers



Composites



Rotating Machinery



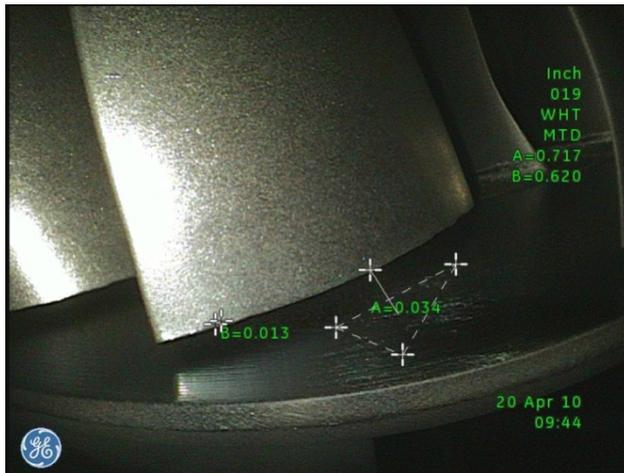
Corrosion



Welds

# Aviation Turbine Inspection

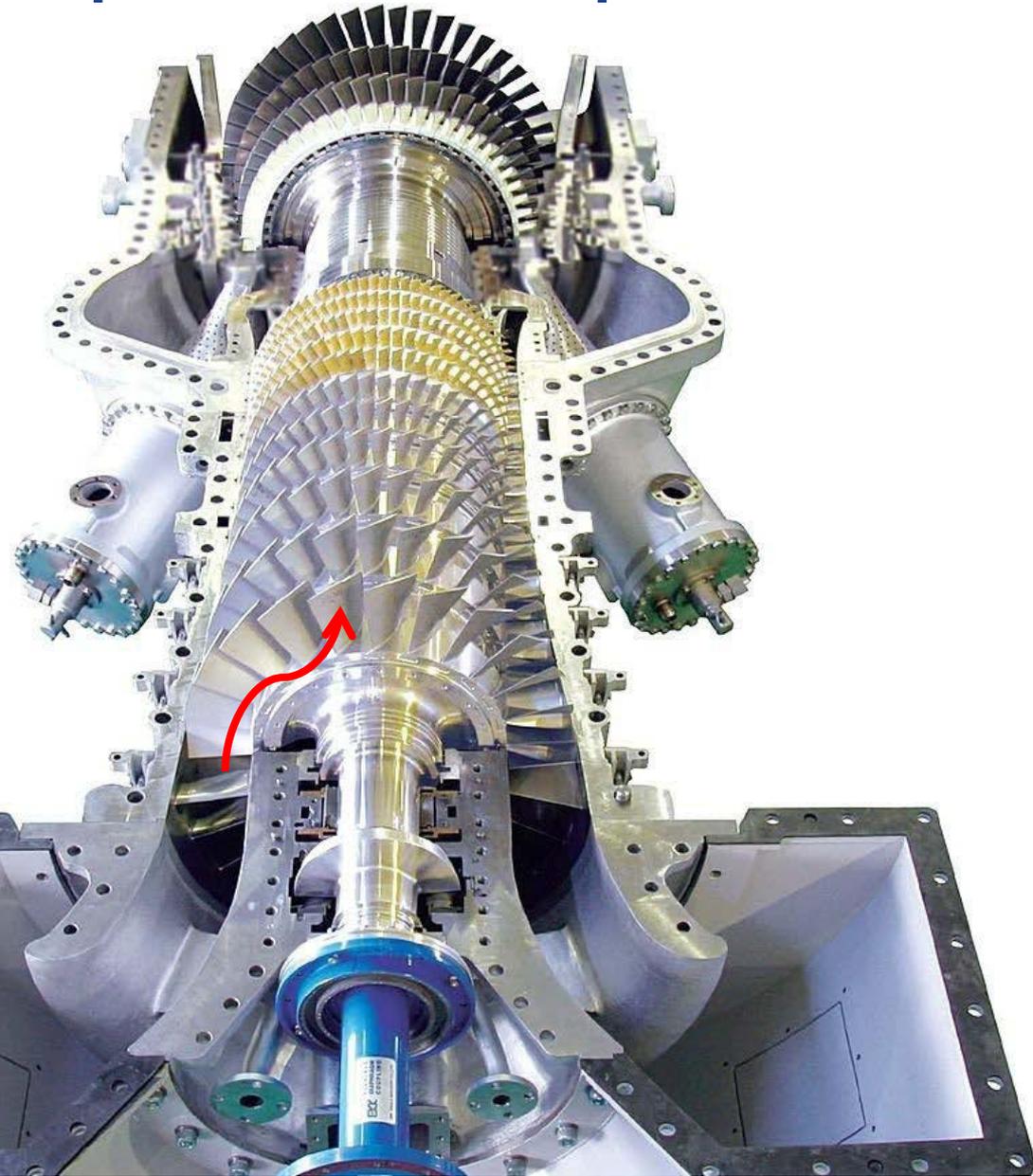
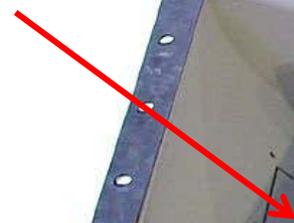
Videoprobes  
6 & 4 mm dia.  
3 meters



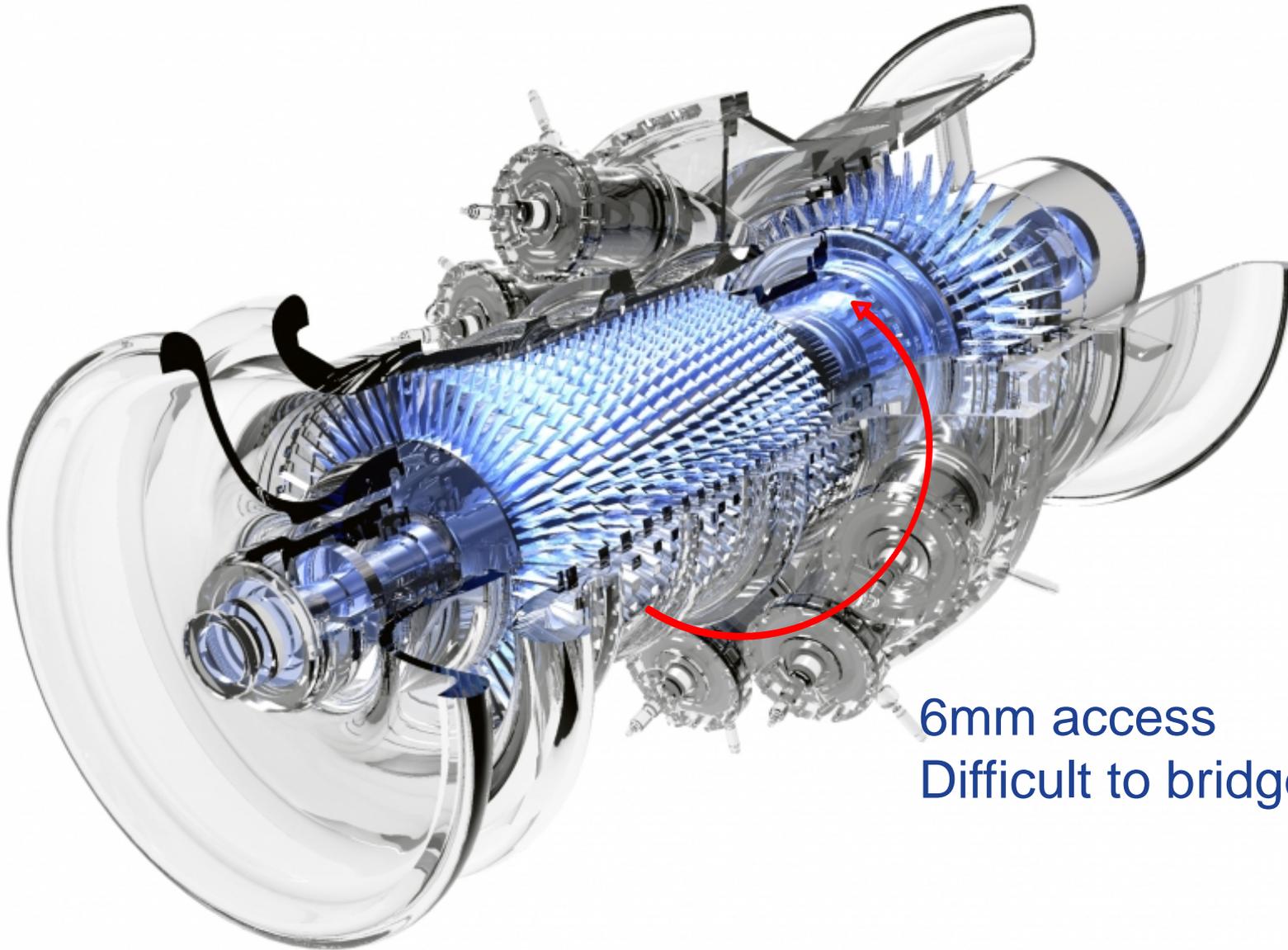
# Gas Turbine Compressor Inspection

Enter through bellmouth  
Snake probe past buckets  
Goal:  
100% exam of 13 stages

Man way



# Turbine Circumferential Inspection



6mm access  
Difficult to bridge gaps

# Airframe and Cavity Inspection

## Cracking Corrosion



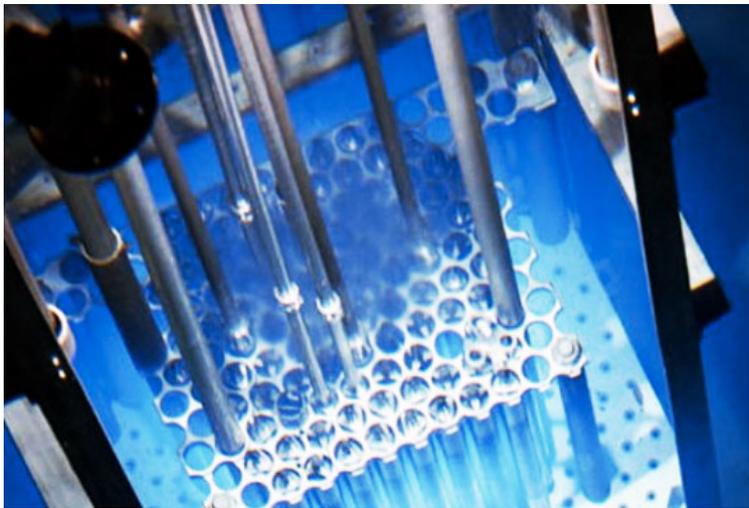
# Nuclear Inspection

Small space inspection

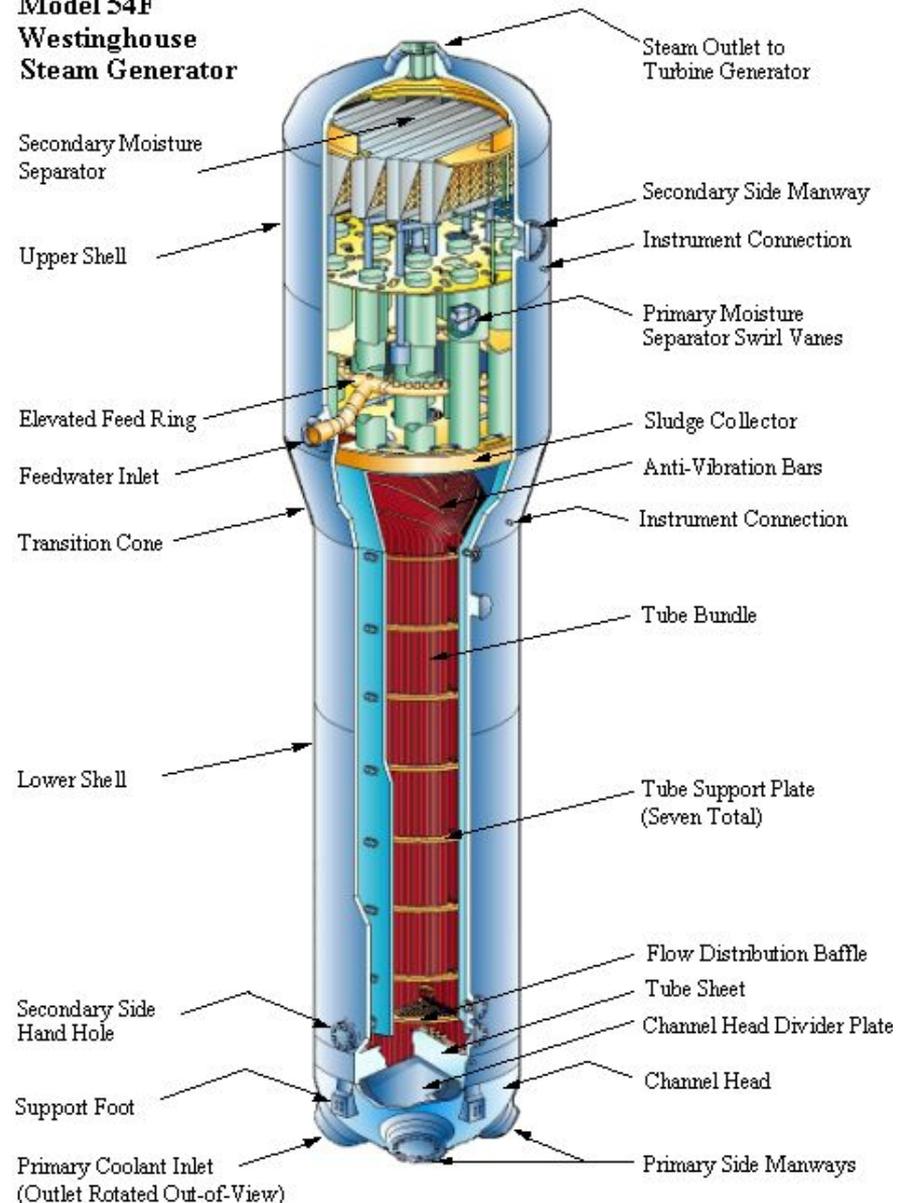
Difficult access

Long probe length

Radiation hardening



**Model 54F  
Westinghouse  
Steam Generator**



# Thank You!

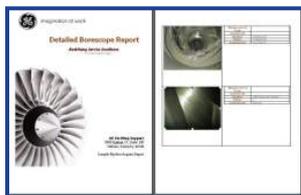
- Unsurpassed expertise and experience
- Products for many industrial applications
- Inspection products that deliver enhanced productivity



Video borescopes



Robotic Crawlers



Inspection Services

Software Solutions



Large Diameter Cameras



imagination at work

# Aerospace



## Applications & Customers

Turbine Engines

Blade defect detection and measurement

Foreign Object Debris (FOD) removal

Commercial Operators

Military – Foreign and Domestic

Engine OEMs

# Energy



## Applications & Customers

Stationary Gas and Steam turbines

Heat exchangers

Gear boxes

Defect detection and measurement

Foreign Object Debris (FOD) removal

Fossil Fuel

Nuclear Plants

Renewable (Wind, Hydro)

Equipment OEMs

# Oil & Gas



## Applications & Customers

Gas Compression Equipment

Piping

Heat exchangers

Defect detection and measurement

Foreign Object Debris (FOD) removal

Oil Producers and Refiners

Transmission

Equipment OEMs

# XLG3 VideoProbe



Turbine blade image



Camera tip articulation



Interchangeable probes

## Most Capable

Joystick controlled articulation

Color CCD at distal end of probe

Integrated 1 or 2-hour battery / UPS

Stereo defect measurement capability

Record still images or video

Embedded PC with Ethernet connectivity

Insertion tube watertight to 30 feet

Execute dedicated application software (MDI)



# XL Go VideoProbe



## Most Portable

1.7 kg / 3.8 lbs ( includes 2-hr battery)

Joystick controlled articulation

Color CCD at distal end of probe

Insertion tube watertight to 30 feet

Integrated 2 or 4-hour battery

Defect measurement capability

Record still images or video

Tested to IP-55

Mil Std 810-F compliant

Dedicated application software (MDI)



# Pan-Tilt-Zoom (PTZ) Cameras



## PTZ Cameras & controller

Rugged, industrial packaging

Integrated lighting – Quartz / LED / UV / IR options

Up to 36X optical zoom

Sealed for underwater use

Integrated still-image and movie capture

Optional laser measurement system

Confined Space inspection applications

# Inspection Service and Equipment Rentals



Global access to knowledge experts

Trained and Certified Technicians

Broadest range and largest supply of advanced RVI equipment

98% loose parts retrieval success rate

24 x 7 Emergency Response

Same day or Next day delivery – worldwide

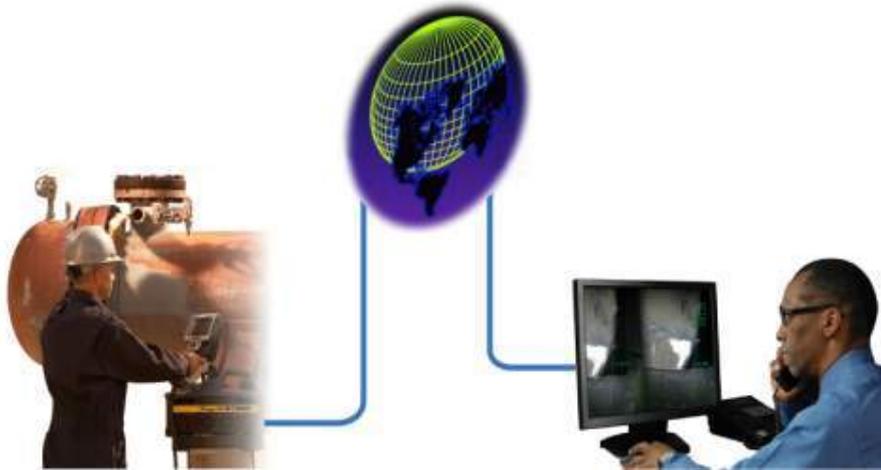
Daily, weekly, monthly rentals

Rent-to-own programs

# RVI Software Products

**Increase speed and ease of sharing inspection data.**

**Place decision maker in-the-loop**



Guides an inspector and eliminates post inspection consolidation of images and user entered inspection data

## **Rhythm Visual & Review Database Platform**

- Turns inspection images into intelligence.
- Capture, analyze, share, and archive inspection information. .

## **XLG3 Network and Remote Collaboration**

Provides ability to share image with owner, expert, or peer on-the-fly. This suite of software provides connectivity and tools to share live video, send email, and instant message.